

1. No hints

2. - Use diffusion eq. to find diffusive loss rate
- Use problem 1 (slide 23) to find recombination loss rate
 - (- Remember to do all parts of the problem)

3. - $v_t = v_{\text{thermal}, e}$
- $T_{\text{neutral}} = \text{room temperature}$
 - You need a relation between the pressure and n_{neutral}
 - The ionization ratio definition can be approximated for a weakly ionized plasma
 - Slide 10
 - What is ∇n in this problem?

4. - From the eq. of motion $\perp \bar{B}$ (s.27), derive the coupled eqs. for v_x & v_y on s.27, and solve for v_x & v_y
- What is the relation between v_{coll} & T_{coll} ?
 - Write out and simplify \bar{v}_\perp
 - $\frac{\partial n}{\partial z} = 0$, $E_z = 0$
 - $\bar{E} \times \bar{B} = ?$, $\nabla n \times \bar{B} = ?$
 - $\bar{v}_{\bar{E} \times \bar{B}} = ?$ (lecture 2)
 - $\bar{v}_D = ?$ (lecture 4)